



Coalfields Expressway

Client: Virginia Department of Transportation

Country: United States

Scope: Design-build-finance 51 miles of highway

Installed Cost \$US: \$1.7 billion, Section A - \$31 million

Year Awarded: 2002 Status: Completion 2022







Coalfields Expressway will replace an existing two-lane roadway in an environmentally sensitive area.

- Viewed as a critical component to the long-term economic health of a historically-impoverished region.
- When completed, there will be more than 500 acres of new developable land.
- Construction, as well as indirect jobs, could result in 1,000 jobs in three counties.
- Commitment to maximizing use of local workers and subcontractors.







Coalfields Expressway



Project Description

Construction of the Coalfields Expressway, or Route 121, stretches 51 miles along Southwest Virginia's mountain ridges linking Interstates 64/77 in Beckley, West Virginia, to U.S. Route 23 in Pound, Virginia. Heading the project's design-build-finance consortium, KBR is working in close partnership with Virginia Department of Transportation (VDOT), as enabled by Virginia's Public-Private Transportation Act.

Typical of Appalachian mountainous regions with high ridges and narrow valleys, relief varies from 80 to 1,400 feet requiring extensive cut and fill. The topography of the Coalfields region requires long and tall

bridges to provide a safe geometric design.

KBR is maximizing Computer-Aided-Design technology on this project to coordinate Virginia-based and multi-state firms in producing a consistent set of drawings. A local project office in Virginia near VDOT and local team members fosters proactive communication between KBR, its large team and the client. KBR created a Plumtree website portal to exchange special provisions, standards, drawings, quantities and schedules, and implemented Primavera Expedition for real-time program control of contracts, engineering drawings, as-builts, O&M manuals and project photographs.



Achievements

- Engineering is coordinated from multiple offices.
- This is a technically-challenging highway project with topographical difficulties associated with its course through the Appalachian Mountains and over coal mines.
- This project was designated as a Congressional High Priority Corridor, making it eligible for 80% federal-matching funds.
- The four bridges will be the tallest bridges in Virginia.

KBR Scope

KBR is serving as the Design-Build contractor and the General Engineering Consultant for overall engineering and project management, as well as designing a third of each of the four sections.

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Project Profile: Southwest Virginia Regional Jail

Client: Southwest Virginia Regional Jail Authority

Scope: Program & Construction Management

Size: 358,748 square feet Project Value: \$65M

Project Complete: 2005



The construction of three new jail facilities to serve Southwest Virginia is currently ahead of schedule and on budget.

- This project is the addition of three new jail facilities located in Abingdon, Duffield and Haysi, Virginia, with a combined size of 358,748 square feet.
- The facilities will each include inmate housing area, administration areas, kitchen, dining, medical, visitation, laundry, recreational, conference and clerical court areas.
- The facilities will house up to 780 inmates with an expansion capacity up to 1,171 inmates, from minimum to maximum security housing classifications.







Project Description

KBR is providing program and construction management services for three new Jail facilities that will serve the counties of Buchanan, Dickenson, Lee, Russell, Scott, Smyth, Washington, Wise and the City of Norton. The new facilities are located in Abingdon, Duffield and Haysi, Virginia.

The Abingdon facility is a 159,853 square foot multi-jurisdictional self supporting facility, including kitchen, dining, medical, visitation, laundry, recreational and Magisterial, conference and clerical court areas. The entire complex was constructed of precast concrete and masonry. The initial bed capacity is 365 beds with built in expansion capacity of 50% or 548 total beds. Primary Local Government users are the counties of Washington, Smyth and Russell.



The Duffield facility is 119,028 square feet and is also a multi-jurisdictional self supporting facility with the same amenities as the site in Abingdon. Initial inmate capacity is 270 beds with a built in expansion of 50% or 405 beds. Primary Local Government users are Lee, Scott and Wise Counties and the City of Norton.

The Haysi facility is 79,867 square feet with an inmate capacity of 145 beds. Built in expansion capacity is 50% or 218 beds, with the same amenities

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as Abingdon and Duffield. Primary Local Government users are Buchanan and Dickenson Counties.



Performing this project as Construction Manager at Risk, KBR provides scheduling, cost control, budget pricing, plan and specification review during design. During the construction phases, KBR performs estimating, value engineering management, bid and contract award management, subcontractor coordination and management reporting systems. KBR monitors Heath, Safety and Environmental issues throughout the duration of the project.

The total square footage of the Project in whole is 358,748. Total initial bed capacity is 780, with an expansion capacity to house up to 1,171 beds. General population of the facility includes both male and female inmates with a minimum through maximum security housing classifications.

Achievements

- KBR used a pre-qualification process to select local quality contractors. As a result of the efforts of these contractors, combined with the management and expertise of the KBR team, this project, scheduled for completion in 2005, is currently ahead of schedule.
- Value engineering done by KBR has afforded the client \$700,000 project enhancements while maintaining the original budget. Additionally, through a unique procurement program instituted by KBR, the client saved an additional \$600,000 on materials purchased for the project.

KBR Scope

Program and construction management services.







Project Profile: New River Valley Regional Jail

Client: New River Valley Regional Jail Authority

Location: Dublin, VA

Scope: Construction management services

Project Value: \$25 million Project Complete: 1999



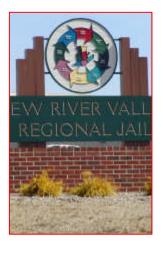
The New River Regional Jail project was a construction management at-risk contract involving new construction of a 139,700-square-foot facility. Members of the authority included the counties of Bland, Carroll, Floyd, Giles, Grayson, Pulaski and Wythe, and the City of Radford.

This fast-track regional 472-bed jail complies with the accreditation standards of the Virginia Department of Corrections and was the first project constructed under the auspices of Virginia's design-build/CM review board.













Design Phase Services

- Cost control during design
- Scheduling
- Value engineering
- Constructability reviews
- Quality control

Construction Phase Services

- Contract implementation and control
- Scheduling
- Management of direct purchase materials
- Quality control and quality assurance programs
- Bid management
- Subcontractor management
- Facility commissions

Client contact:

Ralph Dobbins

New River Valley Regional Jail Authority 108 Baker Road, Dublin, VA 24084

Phone: (276) 643-2001









Project Profile: Red Onion Mountain Maximum Security Facility

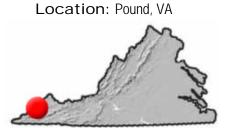
Client: Virginia Department of Corrections (VDOC)

Scope: Design & Construction Management

Size: 540,000 sq. ft.

Project Value: \$68M

Project Complete: 1998





Working together with the VDOC and design team KBR was able to deliver Red Onion on time and under budget.

- Red Onion Mountain Maximum Security Facility is a 540,000-square-foot, 1,267-bed, maximum-security prison in southern Virginia. Over 400 personnel operate the facility.
- The prison comprises six buildings, including four housing units, medical facilities, kitchen and dining areas, and administration areas, as well as all roadways within the prison and to the local roads.
- This project was the largest design-build contract awarded in Virginia's history.









Project Description

Despite two severe winter blizzards and a shortage of local skilled labor, KBR developed innovative solutions and delivered a top-notch facility four months ahead of schedule and under budget. In severely cold weather, the crew managed the pouring of concrete that included 704 cells weighing 26 tons. They ensured that the blocks were solid in the midst of freezing temperatures that had frozen their equipment into the ground.

Several strategies were used to cut costs. KBR developed a solution to stabilize the site comprised of a less costly foundation system called Deep Dynamic Compaction (DDC). KBR

made pre-cast concrete cells on site, further reducing costs associated with transporting the materials. The VDOC partnership with KBR to use inmate labor led to further reduced costs. The sum of these savings resulted in the construction of a fourth housing unit at no additional cost to VDOC.

KBR developed a good reputation with the local community. Briefings and tours were conducted at the site to dispel community concerns. The project created more than 400 permanent jobs. KBR worked with the Virginia Employment Commission to conduct job fairs and contracted 85% of the workers from the area.









KBR Scope

KBR provided design and construction management services.

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Project Profile: City of Richmond Jail Expansion

Client: City of Richmond, Department of Public Works

Scope: Construction management services

Project Value: \$2.9 million Project Complete: 1991 Location: Richmond, VA

The City Jail Expansion was constructed in record time without sacrificing quality or impacting the existing facility's operations or security.

Features

The City of Richmond's jail expansion project included a two-story addition to an occupied multi-custody facility that accommodated 100 beds. The 17,600-square-foot building also included:

- A central control room to control all traffic in the facility via monitoring systems and Folger Adams electric lock system
- Non-contact visitation area
- Administrative support space
- Raised control room in the center of dormitory-style pods that enhance sight lines and minimize required guard positions
- CCTV and automatic intercom system that monitors the entire facility, including administrative support spaces

KBR Scope

- Scheduling
- Cost control during design
- Value management
- Plan and specification building review
- Bid management
- Subcontractor coordination
- Management reporting systems

Achievement

 By using our proven cost control systems and tools, KBR saved the City of Richmond \$300,000 on this project.

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Project Profile: Hampton Roads Regional Jail

Client: Hampton Roads Regional Jail Authority

Scope: Program & Construction Management

Size: 400,000 sq. ft.

Project Value: \$80 Million Project Complete: 1997





The multi-jurisdictional facility is constructed of precast concrete and masonry and houses support facilities, including kitchen, dining, medical, visitation and recreation areas.

- Hampton Roads Regional Jail is an 875-bed, 400,000 sq. ft. multi-jurisdictional jail facility serving Norfolk, Portsmouth, Hampton and Newport News, Virginia.
- This multi-jurisdictional facility houses support facilities, including kitchen, dining, medical, visitation and recreation areas.
- The entire Hampton Roads Regional Jail facility complex is located on a restricted site that required dynamic deep compaction and wetlands mitigation.
- KBR managed this \$80 million, large-scale Program/Construction Management project, notable for value engineering efforts that substantially reduced agency cost.







Project Description

Serving as the owner's agent directly managing the design and construction, KBR provided scheduling, cost control during design, value management, plan and specification review, bid management, subcontractor coordination and management of reporting systems.

At the punchlist phase, the building contractor relinquished their responsibility and KBR took on the addition role of completing the project.

appreciation... for your professional interests, efforts and services....

An excerpt of a commendation letter to KBR from Roy W. Cherry, Executive Director, Hampton Roads Regional Jail Authority

By effectively working with the owner, design team and contractors, KBR played a key role in saving the project \$5.3 million through value engineering.

By performing a space utilization analysis, unusable space was discovered, recaptured and transformed into space for additional beds. This action reduced the size of the original housing unit by 33 percent. The merits of KBR's value engineering efforts resulted in increased operational efficiency of the facility, a decrease in the facility's cost-per-



bed ratio and a reduction in the construction schedule.

Achievements

- The KBR project team as a whole realized a total savings of \$5.3 million for the Authority through value engineering.
- Through an active subcontracting program, KBR was instrumental in reaching a 90 percent participation level with local and minority service providers.

KBR Scope

KBR provided program and construction management services.

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